

Effect of UV-Radiation on the Migration of Vinyl Chloride Monomer from Unplasticized PVC Pipes

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Abstract: The effect of direct exposure to UV-radiation on the migration of vinyl chloride monomer (VCM) from unplasticized polyvinyl chloride (uPVC) pipes was investigated using locally manufactured pipes. Specimens 33-cm long were used throughout the research. The investigation was carried out, at different times of exposure to a UV-radiation. The VCM concentration in the water was evaluated using the gas chromatography (GC)/head-space technique. A VCM concentration of 2.3 µg/L (ppb) was detected after 14 days of exposure to the UV-radiation. The initial VCM concentration in the uPVC pipe was calculated and the diffusion coefficient of VCM was expressed as a function of time.